U.S. Application No. 10/502,117
Reply to Office Action of December 28, 2007
Amendment dated: May 27, 2008

AMENDMENTS TO THE CLAIMS:

This listing of claims shall replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A high-frequency module including a wiring pattern formed in an organic insulative layer and a plurality of conductive parts forming passive elements and distributed parameter elements, which transmit a high-frequency signal,

each of the conductive parts being formed correspondingly to an area of the organic insulative layer where no woven glass fabric is laid, and

wherein the organic insulative layer is formed from among liquid crystal polymer, liquid crystal polymer having a ceramic powder dispersed therein, benzocyclobutene, benzocyclobutene having a ceramic powder dispersed therein, ~~polyimide,~~ polyimide having a ceramic powder dispersed therein, polynorbornen, polynorbornen having a ceramic powder dispersed therein, polyphenylether, polyphenylether having a ceramic powder dispersed therein, polytetrafluoroethylene, polytetrafluoroethylene having a ceramic powder dispersed therein, bismaleimide-triazine, bismaleimide-triazine having a ceramic powder dispersed therein, which is low in specific inductive capacity and loss~~, or any one of these organic materials also having a ceramic powder dispersed therein.~~

2. (Original) The high-frequency module according to claim 1, wherein each of the conductive parts is covered with a ground layer formed on the organic insulative layer to form a strip structure or a micro-strip structure.

3. - 4. (Canceled)

5. (Currently Amended) A high-frequency module comprising:

a base substrate block comprising an organic substrate having formed on a main side thereof a plurality of wiring layers each including an organic insulative layer and a wiring pattern and having at least the uppermost one of the wiring layers flattened to form a buildup surface; and

an elements block having formed in an organic insulative layer formed over a main side of the buildup surface of the base substrate block a wiring pattern and a plurality of conductive parts forming passive elements and distributed parameter elements, which transmit a high-frequency signal,

each of the conductive parts of the elements block is formed correspondingly to an area of the organic insulative layer where no woven glass fabric is laid, and

wherein the organic substrate and organic insulative layer are formed from among liquid crystal polymer, liquid crystal polymer having a ceramic powder dispersed therein, benzocyclobutene, benzocyclobutene having a ceramic powder dispersed therein, ~~polyimide,~~ polyimide having a ceramic powder dispersed therein, polynorbornen, polynorbornen having a ceramic powder dispersed therein, polyphenylether, polyphenylether having a ceramic powder dispersed therein, polytetrafluoroethylene, polytetrafluoroethylene having a ceramic powder dispersed therein, bismaleimide-triazine, bismaleimide-triazine having a ceramic powder dispersed therein, which is low in specific inductive capacity and loss~~, or any one of these organic materials also having a ceramic powder dispersed therein~~.

6. (Original) The high-frequency module according to claim 5, wherein the base substrate block has a ground pattern in a portion of the organic insulative layer corresponding to the conductive parts and no woven glass fabric is laid at least between the ground pattern and conductive parts.

7. (Original) The high-frequency module according to claim 5, wherein being shielded by a ground pattern formed on the organic insulative layer to enclose the perimeters of the conductive parts, the conductive parts form together a strip structure or a micro-strip structure.

8. (Original) The high-frequency module according to claim 5, wherein the wiring layers in the base substrate block have no woven glass fabric formed in portions thereof opposite to areas where the conductive parts are formed.

9. - 10. (Canceled)

11. (Currently Amended) A method of producing a high-frequency module, comprising the steps of forming a base substrate block and an elements block, respectively,

in the base substrate block forming step, there is formed, on a main side of an organic substrate, a plurality of wiring layers each including an organic insulative layer and a predetermined wiring pattern, and a buildup surface is formed by flattening at the uppermost one of the wiring layers; and

in the elements block forming step, there is formed, in the organic insulative layer formed on the buildup surface of the base substrate block, a wiring pattern and a plurality of conductive parts forming passive elements and distributed parameter elements, which transmit a high-frequency signal,

each of the conductive parts of the elements block being formed correspondingly to an area of the organic substrate where no woven glass fabric is laid, and

wherein the organic substrate and organic insulative layer are formed from among liquid crystal polymer, liquid crystal polymer having a ceramic powder dispersed therein, benzocyclobutene, benzocyclobutene having a ceramic powder dispersed therein, ~~polyimide,~~ polyimide having a ceramic powder dispersed therein, polynorbornen, polynorbornen having a ceramic powder dispersed therein, polyphenylether, polyphenylether having a ceramic powder dispersed therein, polytetrafluoroethylene, polytetrafluoroethylene having a ceramic powder dispersed therein, bismaleimide-triazine, bismaleimide-triazine having a ceramic powder dispersed therein, which is low in specific inductive capacity and loss~~, or any one of these organic materials also having a ceramic powder dispersed therein~~.

12. (Original) The method according to claim 11, wherein the base substrate block forming step, a ground pattern is formed in a portion of the organic insulative layer corresponding to the conductive parts and no woven glass fabric is laid at least between the ground pattern and conductive parts.

13. (Original) The method according to claim 11, wherein:

in the base substrate and element forming layer forming steps, a ground pattern is formed on the organic insulative layer to enclose the perimeters of the conductive parts; and

being shielded by the ground pattern, the conductive parts form together a strip structure or a micro-strip structure.

14. (Original) The method according to claim 11, wherein the wiring layers in the base substrate block have no woven glass fabric formed in portions thereof opposite to areas where the conductive parts are formed.

15. (Canceled)

16. (Currently Amended) A high-frequency module comprising:

a base substrate block comprising an organic substrate containing a woven glass fiber and having formed on a main surface thereof a plurality of wiring layers each including an organic insulative layer and a wiring pattern but containing no woven glass fiber, and having at least the uppermost one of the wiring layers flattened to form a buildup surface, and wherein an electrical ground layer is formed between the woven glass fiber substrate and the plurality of wiring layers in order to electrically isolate subsequent wirings from the woven glass fiber; ~~and~~

an elements block having formed in an organic insulative layer formed on the main side of the buildup surface of the base substrate block a wiring pattern and a

plurality of conductive parts forming passive elements ~~and distributed parameter elements, which transmit a high frequency signal~~,

wherein at least one of the wiring layers in the base substrate block includes a strip-line structure constituting a resonator, filter or coupler, and

each of the conductive parts of the elements block is formed correspondingly to an area of the organic insulative layer where no woven glass fabric is laid above the ground layer formed in the base substrate block, and said at least one wiring layer including a strip-line structure is formed correspondingly to an area of the organic insulative layer where no woven glass fabric is laid between the strip-line structure and the nearest ground layer.

17. (Currently Amended) A high-frequency module comprising:

upper and lower organic substrates, containing woven glass fiber, attached together with one or more wiring layers therebetween, each wiring layer including an organic insulative layer and a wiring pattern but containing no woven glass fiber, and wherein an electrical ground layer is formed between each of the upper and lower substrates and the one or more wiring layers in order to electrically isolate the wiring layers from the woven glass fiber contained in the upper and lower organic substrates, respectively; and

wherein said one or more wiring layers contains at least a strip-line structure constituting one element selected from a resonator, filter, or coupler, and

wherein the at least one element is formed corresponding to an area of the wiring layers where no woven glass fabric is laid below the ground layer electrically isolating

the upper organic substrate and ~~where~~ no woven glass fabric is laid above the ground layer electrically isolating the lower organic substrate.

18. (Canceled)

19. (Previously Presented) A method of producing a high-frequency module according to claim 11,

wherein said organic substrate includes woven glass fabric, and said plurality of wiring layers contain no woven glass fabric, and

said base substrate block forming step includes a step of forming a ground layer over said organic substrate at least at portions corresponding to positions of said conductive parts in order to electrically isolate said conductive parts from said woven glass fabric.

20. (Canceled)

Please add the following new claims:

21. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from either liquid crystal polymer or liquid crystal polymer having a ceramic powder dispersed therein.

22. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from either benzocyclobutene or benzocyclobutene having a ceramic powder dispersed therein.

23. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from either polynorbornen or polynorbornen having a ceramic powder dispersed therein.

24. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from either polyphenylether or polyphenylether having a ceramic powder dispersed therein.

25. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from either polytetrafluoroethylene or polytetrafluoroethylene having a ceramic powder dispersed therein.

26. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from either bismaleimide-triazine or bismaleimide-triazine having a ceramic powder dispersed therein.

27. (New) The high-frequency module according to claim 1, wherein said organic insulative layer is formed from polyimide having a ceramic powder dispersed therein.